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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,865

01/11/2007

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YAO-4369US

1741

52473

7590

10/01/2010

RATNERPRESTIA

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EXAMINER

CHU, KIM KWOK

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

10/01/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,865	Applicant(s) SHOJI ET AL.	
	Examiner Kim-Kwok CHU	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 7-16 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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Drawings

1. Figures 1-3 and 10-15 should be designated by a legend such as --Prior Art--.

Claim Objections

2. Claim 5 is objected to because of the following informalities:

in claim 5, lines 6 and 8, the term "paths" and "indexes" should be referred to a maximum likelihood data detection method.

Appropriate correction is required.

101 Rejection

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 15 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 15 is drawn to a program for having a computer execute a recording process. The broadest reasonable interpretation of a claim drawn to a computer readable medium (also called machine readable medium and other such variations) typically covers forms of non-transitory tangible media and transitory propagating signals per se in view of the ordinary

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and customary meaning of computer readable media, particularly when the specification is silent. When the broadest reasonable interpretation of a claim covers a signal per se, the claim must be rejected under 35 U.S.C. § 101 as covering non-statutory subject matter. See *In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007) (transitory embodiments are not directed to statutory subject matter) and Interim Examination Instructions for Evaluating Subject Matter Eligibility Under 35 U.S.C. § 101, Aug. 24, 2009; p. 2.

The USPTO recognizes that applicants may have claims directed to computer readable media that cover signals per se, which the USPTO must reject under 35 U.S.C. § 101 as covering both non-statutory subject matter and statutory subject matter. In an effort to assist the patent community in overcoming a rejection or potential rejection under 35 U.S.C. § 101 in this situation, the USPTO suggests the following approach. A claim drawn to such a computer readable medium that covers both transitory and non-transitory embodiments may be amended to narrow the claim to cover only statutory embodiments to avoid a rejection under 35 U.S.C. § 101 by adding the limitation "non-transitory" to the claim. Such an amendment would typically not raise the issue of new matter, even when the specification is silent because the broadest reasonable interpretation relies on

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the ordinary and customary meaning that includes signals per se. The limited situations in which such an amendment could raise issues of new matter occur, for example, when the specification does not support a non-transitory embodiment because a signal per se is the only viable embodiment such that the amended claim is impermissibly broadened beyond the supporting disclosure. See, e.g., *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 7-14 and 16 are rejected under 35 U.S.C. § 102(b) as being anticipated by Furumiya et al. (U.S. Patent 6,791,926).

7. Furumiya teaches a recording method having all the steps as recited in claims 1, 2 and 7-13.

Regarding Claim 1, the recording method for recording information on a recording medium 1 (Fig. 1) under one recording

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condition of a plurality of recording conditions (Fig. 3; pulse patterns are used to determine the recording condition such as mark/space jitter), the recording method comprising the steps of: (a) recording a plurality of test information on the recording medium 1 under the plurality of recording conditions (Figs. 1 and 11; recording pulse parameters prerecorded to the medium; column 9, lines 45-48; 64-66); and (b) recording the information on the recording medium 1 under one recording condition of the plurality of recording conditions (Fig. 11A-11I; a random pattern is generated as a recording pattern), wherein the step (b) includes the steps of: (b-1) calculating differences (correction values) between each of a plurality of test signals (random test pattern) obtained by reproducing the plurality of test information recorded on the recording medium 1 and at least one desired signal (column 10, lines 30-40); and (b-2) selecting one recording condition of the plurality of recording conditions by referring to the calculated differences (applying correction; column 10, lines 41-46).

Regarding Claim 2, the step (a) includes the steps of: (a-1) determining an initial condition (Figs. 2A and 2B; mark length is the initial condition); and (a-2) determining at least one recording condition based on the initial condition (Fig. 3), and the plurality of recording conditions (test patterns)

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include the initial condition and the determined at least one recording condition (Figs. 2 and 3; predetermined pulse parameters are reproduced).

Regarding Claim 7, a priority order for being selected is given to the plurality of recording conditions (one of the parameters is selected and then next one is followed in form of a test pattern).

Regarding Claim 8, the step (b) includes the steps of: determining relative positions of a plurality of light pulses included in a light beam in accordance with the selected one recording condition (Fig. 1; selects test pattern); and forming a plurality of recording marks having predetermined lengths on the recording medium by irradiating the recording medium with the light beam (Fig. 1; writing test patterns).

Regarding Claim 9, the plurality of recording marks having the predetermined lengths include a shortest recording mark (Fig. 3).

Regarding Claim 10, the plurality of recording marks having the predetermined lengths (test pattern) include a recording mark which is the second shortest (Fig. 3; one of the pulse/mark is not the shortest).

Regarding Claim 11, the initial condition is recorded on

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the recording medium when the recording medium is manufactured (Figs. 1 and 2; column 7, lines 4 lines).

Regarding Claim 12, determining a predetermined recording condition (pre-recorded parameters) based on at least one of an edge shift amount and a jitter (Figs. 11A-11I), wherein the predetermined recording condition is included in the plurality of recording conditions (Fig. 2; prerecorded parameters are written in form of test patterns).

Regarding Claim 13, the step (a-1) includes the step of determining the predetermined recording condition as the initial condition (Fig. 2; prerecorded parameters are written in form of test patterns).

8. Method claim 14 is drawn to the method of using the corresponding apparatus claimed in claim 1. Therefore method claim 14 corresponds to apparatus claim 1 and is rejected for the same reason of anticipation as used above.

9. Method claim 16 is drawn to the method of using the corresponding apparatus claimed in claim 1. Therefore method claim 16 corresponds to apparatus claim 1 and is rejected for the same reason of anticipation as used above.

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Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claim 15 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Furumiya et al. (U.S. Patent 6,791,926) in view of Ikeuchi (U.S. Patent 6,952,818).

Furumiya teaches a compatible disk player very similar to that of the present invention. Furumiya teaches the following:

Regarding Claim 15, a recording process (steps/method) for recording information on a recording medium 1 (Fig. 1) under one recording condition of a plurality of recording conditions (Fig. 3; pulse patterns are used to determine the recording condition such as mark/space jitter), the recording method comprising the steps of: (a) recording a plurality of test information on the recording medium 1 under the plurality of recording conditions (Figs. 1 and 11; recording pulse parameters prerecorded to the medium; column 9, lines 45-48; 64-66); and (b) recording the information on the recording medium 1 under one recording condition of the plurality of recording conditions (Fig. 11A-

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11I; a random pattern is generated as a recording pattern), wherein the step (b) includes the steps of: (b-1) calculating differences (correction values) between each of a plurality of test signals (random test pattern) obtained by reproducing the plurality of test information recorded on the recording medium 1 and at least one desired signal (column 10, lines 30-40); and (b-2) selecting one recording condition of the plurality of recording conditions by referring to the calculated differences (applying correction; column 10, lines 41-46).

However, Furumiya does not teach the above recording process is in form of a computer executable program.

Ikeuchi teaches a computer executable program containing instructions for controlling the operation of optimum recording of data on a storage medium using test pattern (Fig. 2A)

In order to perform data recording/reproducing on a recording medium such as Furumiya's, a computer processor is used to controlled the recording/reproducing steps which are stored in the processor. However, when the recording/reproducing operation required updated or applied to different recording media, it would have been obvious to one of ordinary skill in the art that the steps stored in the processor is written in form of a computer executable program similar to Ikeuchi's, because the computer executable program can be

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modified with new operational parameters for various recording/reproducing media. Furthermore, the updatable program can be written to various storage media instead of limiting to one type of medium.

Allowable Subject Matter

12. Claims 3-6 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 3, the prior art of record fails to teach or fairly suggest a recording method having following features: obtaining the plurality of test signals by reproducing the plurality of p test information from the recording medium; performing a maximum likelihood decoding on the plurality of test signals to generate a plurality of two-valued signals indicating a result of the maximum likelihood decoding; and calculating a reliability of the result of the maximum likelihood decoding based on the plurality of test signals and the plurality of two-valued signals, and the step (b-2) includes the step of: selecting one recording condition of the plurality

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of recording conditions based on a plurality of values indicating the reliability.

in claim 5, the prior art of record fails to teach or fairly suggest a recording method having following features: obtaining the plurality of test signals by reproducing the plurality of test information from the recording medium; generating a plurality of paths (maximum likelihood) based on each of the plurality of test signals; and calculating a plurality of indexes indicating a reliability of the plurality of test signals based on each Of the plurality of test signals and the plurality of paths (maximum likelihood), and the step (b-2) includes the step of: selecting one recording condition of the plurality of recording conditions based on the plurality of indexes.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

Related Prior Art

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sugawara et al. (6,532,122) is pertinent because Sugawara teaches a maximum likelihood means in a data storage apparatus.

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15. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen, can be reached on (571) 272-7579.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

/Kim-Kwok CHU/
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September 27, 2010
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